WRITTEN TESTIMONY OF

Timothy R. E. Keeney

Deputy Assistant Secretary for Oceans and Atmosphere

National Oceanic and Atmospheric Administration

U.S. Department of Commerce

before the

House Subcommittee on Fisheries Conservation, Wildlife and Oceans

House Resources Committee

June 27, 2002

Chairman Gilchrest and members of the Subcommittee, thank you for the opportunity to appear before you today to discuss implementation of the Coral Reef Conservation Act of 2000 (CRCA) and the Coral Reef Executive Order 13089. The Department of Commerce and National Oceanic and Atmospheric Administration (NOAA) greatly appreciate the interest and support the Subcommittee has provided to address conservation of coral reefs and other ocean and coastal resources. We look forward to working with you in the future to help sustain healthy ocean resources, and the communities and economies that depend on them.

Coral reefs are some of the most valuable, beautiful, and unfortunately, threatened ecosystems on the planet. Under attack from multiple sources such as over-fishing, destructive fishing practices, pollution from land, sea and air, habitat degradation, diseases, and invasive species, these ancient ecosystems are deteriorating worldwide. At the same time, in the United States and around the world, rapidly growing coastal populations have increased the demand on reefs for food, jobs, income, recreation, tourism, and shoreline protection. Increased demands are also coming from markets far away from reefs. The international trade in coral to supply the aquarium industry has increased more than 400% since 1988, and the trade in live reef rock has increased 1700%. The U.S. is the world's largest importer of coral products and marine fishes for the aquarium industry. Scientists and businesses are searching the rich biological diversity of coral reefs for new cures for cancer, AIDS and other diseases. Reefs are critical to the million or more species that depend on them for some part of their life cycle. Healthy coral reefs are in high demand, and the loss of these valuable resources has significant social, economic and environmental consequences here at home and abroad.

To successfully address these serious and complex issues, we need coordinated reef conservation and management efforts at local, state, national, and international levels. Recognizing this need, the Coral Reef Conservation Act (CRCA) and Executive Order 13089 were designed to increase the coordination and effectiveness of U.S. government actions to conserve and manage coral reef ecosystems. In fact, NOAA conducts a wide variety of activities related to coral reefs in fulfillment of its mission and authorities. Many of NOAA's mandates include responsibilities for coral reef resources and activities in areas with coral reefs. Examples include: federal fisheries management, threatened and endangered species, marine mammals, coastal zone management, National Marine Sanctuaries, National Estuarine Research Reserves, response

and restoration, mapping and charting, and research and monitoring. Four of NOAA's five Line Offices have undertaken activities related to coral reefs for many years.

My remarks will briefly summarize NOAA's efforts to implement the CRCA and the Executive Order, and provide some suggestions for the future. I have three main points. First, NOAA and other agencies have made significant progress to implement the CRCA and the Executive Order. These actions have increased the capacity to conserve coral reefs, both in the United States and with international partners. Second, continuing this progress will require continued action, coordination, and evaluation by federal agencies, states, territorial governments, other nations, and non-governmental organizations. Given the scale and magnitude of the problem, no one entity can successfully address these issues alone, and we need to track our progress carefully to remain on course. Third, we need to focus on using all of the management tools at our disposal for success. This will mean changing some practices so our actions sustain reefs rather than degrade them. The good news is that many of the solutions already exist to reverse current trends and mitigate the loss of these valuable resources.

The Challenge

Coral reefs are complex ecosystems that provide many important products and services in the United States and around the world. Although, coral reefs cover less than 0.1 % of the ocean environment, they are home to at least a 100,000 described species, support 25% of all known global species of marine fish, and provide food, jobs, income, recreation, and other vital services for people world-wide. Coral reefs are found in over 100 countries, and many of these are developing nations where reefs contribute about one-quarter of the total fish catch. South East Asia has more coral reefs than any other region, the most diverse reef systems, and the world's most highly threatened reefs from over-fishing, destructive fishing practices, sedimentation, and pollution from land-based sources.

About 7% of the world's reefs are located within U.S. waters. Although many U.S. coral reefs have not been adequately mapped, it is estimated that shallow water U.S. coral reefs - those in less than 150 feet - cover about 7,500 square miles or about the size of Maryland. The majority of these shallow U.S. reefs are in the Pacific near Hawaii, Guam, American Samoa, and the Northern Marianas Islands. The remainder are located in the South Atlantic, the Gulf of Mexico, the U.S. Caribbean near Florida, Puerto Rico and the U.S. Virgin Islands. Although mapping efforts have not been completed, it is estimated that perhaps more than half of all U.S. reefs are located within state or territory waters, highlighting the important role states and territories have in managing the nation's coral reefs. Given this role, NOAA and other federal agencies have made working with these partners and supporting their management efforts a top priority. Because many U.S. coral reefs often depend on reefs beyond our borders for reproduction and survival, effective conservation of U.S. coral reefs also requires international action.

Coral reef ecosystems are extremely valuable. For example, recent studies by NOAA, state and local partners in Florida show that in 2001, 28 million person-days were spent on recreational diving, fishing, viewing, and other reef-related activities in Southeast Florida's coral reefs. These activities generated about $4.4 billion in local sales, almost $2 billion in local income, and 71,300 full and part-time jobs. Overall, southeast Florida's coral reefs were estimated to have an asset value of $7.6 billion. Similar trends have been observed in other U.S. and international areas where tourism associated with coral reefs is a major economic sector. Healthy coral reefs are also vital to the commercial and recreational fishing sectors in this country. For example, approximately 50% of the federally managed commercial fisheries species spend part of their life cycle in coral reef ecosystems.

These valuable ecosystems are in serious jeopardy. Before 1998, the Global Coral Reef Monitoring Network estimated that 11% of the world's coral reefs had been effectively lost, primarily due to pollution from land and sea, over-fishing, destructive fishing practices, ship groundings and other human impacts. By 2000, the estimate had grown to 27% due to massive coral bleaching and mortality events associated with climate events. The study suggests that if additional action is not taken to reduce these impacts, another third of the world's reefs could be lost in the next 10 to 30 years.

In 1998, a global assessment of threats to reefs by the World Resources Institute suggested that many U.S. reefs are at high to medium threat levels. Many U.S. reef systems have been degraded and need assistance, although there are few U.S. reefs that currently have the monitoring and assessment needed to track reef condition over time. One of the most studied areas is in the Florida Keys National Marine Sanctuary. Data from a number of studies shows deterioration of the Florida Keys reefs over the past 20 years. Included are significant losses in amount of coral cover, fish abundance and diversity, and other indicators. During this time, South Florida's population and the number of recreational vessels has doubled, water quality has declined in some areas, and diseases and coral bleaching events have increased. In many parts of Florida and the Caribbean, what used to be the most common and abundant shallow water coral species (elkhorn and stagehorn coral) have been reduced by 50 to 90% due to diseases and other factors.

NOAA Action: Executive Order 13089

The U.S. has taken a number of significant actions over the past 5 years to help sustain coral reef ecosystems and the communities and economies that depend on them. In 1998, the U.S. Coral Reef Task Force (Task Force) was established by Executive Order 13089 to help lead and coordinate U.S. efforts to conserve coral reefs. The Task Force, co-chaired by the Secretary of Commerce through the Administrator of the National Oceanic and Atmospheric Administration (NOAA) and the Secretary of the Interior, includes the heads of eleven federal agencies (Department of Agriculture, Department of Commerce, Department of Defense, Department of the Interior, Department of Justice, Department of State, Department of Transportation, Environmental Protection Agency, National Aeronautics and Space Administration, National Science Foundation, United States Agency for International Development), and the Governors of seven states, territories, and commonwealths (American Samoa, Florida, Guam, Hawaii, Northern Mariana Islands, Puerto Rico, United States Virgin Islands). Representatives of the Freely Associated States (Palau, Federated States of Micronesia and the Marshall Islands) were recently added to the Task Force, recognizing their rich coral reef resources.

In March 2000, the Task Force adopted The National Action Plan to Conserve Coral Reefs (National Action Plan), the first national blueprint for U.S. action to address the loss and degradation of coral reef ecosystems. Based on extensive input from government and non-government organizations, scientists, resource managers, Regional Fishery Management Councils, other stakeholders and the public, the National Action Plan: (1) identified key threats and issues driving the loss and degradation of coral reefs; (2) established thirteen major goals to address these threats; and, (3) outlined specific objectives and priority actions needed to achieve each goal.

Since then, significant action has been taken to implement the National Action Plan. The Task Force has provided a forum for exchanging information, building partnerships, coordinating efforts, tracking accomplishments, facilitating public input, and identifying key issues needing attention. In addition, it also provides a mechanism to evaluate efforts and adapt the national blueprint in response.

Working with many government and non-governmental partners, the Task Force has helped coordinate coral

reef conservation and management efforts across federal agencies and with state, territory, and commonwealth partners. New actions and new partnerships are underway, and there are clear signs that the capacity to conserve coral reefs is increasing at a variety of levels. There is much left to be done however. At its last meeting in December 2001, the Task Force highlighted the need to improve efforts that will track progress to implement the National Action Plan and identify key areas still needing attention. We agree that these actions need to be taken. The Task Force is a useful mechanism to increase coordination, track progress, and assess needs to implement and fulfill the goals of the National Action Plan.

NOAA Action: Implementing the Coral Reef Conservation Act

In 2000, NOAA received $8 million in funding specifically for coral reef conservation activities. In fiscal years (FYs) 2001 and 2002, this funding increased to $27 and $28 million respectively for activities specifically related to coral reef conservation and management. The President has requested $28 million for FY2003. In December 2000, the CRCA authorized NOAA to undertake four specific actions to help conserve coral reefs. This funding and authorization has significantly increased the Nation's capacity to conserve coral reefs. Much of the funding has gone directly to NOAA's partners in the states and territories, universities, and the private sector to strengthen their efforts and build capacity.. I will briefly summarize NOAA's actions to implement the CRCA, the goals and activities supported by the new coral funding, and progress made to achieve them.

First, the CRCA charged NOAA with developing a National Coral Reef Action Strategy (Strategy) consistent with the purposes of the CRCA, which includes goals, objectives, an implementation plan addressing a number of specific topics, and a summary of funding obligated each fiscal year to advance coral reef conservation. Because the Coral Reef Task Force had already developed a detailed National Action Plan laying out key goals, objectives and implementation plans, NOAA has worked with the Task Force over the past year to develop and complete the Strategy. I am very pleased to report that the 2002-2003 Strategy has been completed and provide you with the first prepublication copies. The document will be printed and made available for public comment through the *Federal Register* in July. The Strategy is designed to help track progress to implement the goals and objectives of the CRCA and the National Action Plan. It provides a cross-government accounting of accomplishments and an initial roadmap for what still needs to be done. This is an important first step and we are working with the Task Force and other partners to improve upon this process. Ultimately we will be able to provide interested stakeholders with a regularly updated map of ongoing and future coral reef activities.

Second, the CRCA authorizes NOAA to establish a Coral Reef Conservation Grant Program to issue grants for broad-based coral reef conservation activities. In FY2002, NOAA formally established the Grant Program according to the provisions in the CRCA, and plans to distribute approximately $5.1 million through the program. In FY2001 and FY2002, the Grant Program has focused on increasing capacity in six major areas based on priorities identified by the National Action Plan, the CRCA, and our partners. These areas include: state and territorial coral reef management; monitoring and research; international coral reef conservation; general coral reef conservation; and improvements to coral reef fishery management plans. This year, NOAA received 96 proposals requesting nearly $8.5 million in total. The proposals are currently undergoing peer review from reviewers inside and outside of NOAA and we expect to make funding decisions by October 1. We think this is a very important mechanism to help leverage limited federal dollars and support coral reef conservation efforts by states, territories, fishery management councils and other partners. We hope to streamline the grant process and continue this effort in the future.

Overall, it is important to note that in both FY2001 and FY2002, over 70% of the coral reef conservation

funding in NOAA's budget will go to non-NOAA external partners including states, territories, local governments, fishery management councils, universities, and others. In FY 2002, that is approximately $20 million of the $28.25 million in NOAA's budget for the Coral Reef Conservation Program.

Third, the CRCA authorizes establishment of a Coral Reef Conservation Fund (Fund) to build public-private partnerships for coral reef conservation. NOAA established the Fund in partnership with the National Fish and Wildlife Foundation in FY2001 to provide matching grants for on-the-ground projects. In the first year, the Foundation received 160 applications requesting over $6 million in federal funding in response to two calls for proposals. During the first selection process, fifteen projects were awarded. By leveraging NOAA resources with matching dollars, a $1.8 million on-the-ground coral reef restoration effort wa able to be completed. The second set of proposals is currently under review and final decisions are expected in July. The Foundation has taken steps to help find additional partners and support for the Fund. We think this is a unique and valuable tool to help engage the private sector and build community-based partnerships to support on-the-ground coral reef conservation efforts. We look forward to continuing this partnership in the future.

Fourth, the CRCA authorized implementation of a National Coral Reef Conservation Program to conduct a variety of activities to conserve coral reef ecosystems. Funding for coral reef conservation in FY 2001 and FY2002 allowed NOAA to build on the agency's existing programs, management responsibilities, and technical strengths. It also allowed NOAA to implement new activities that address priorities identified by the National Action Plan, the Act, our state and territory partners, the scientific community, and others. Using these as guideposts, NOAA launched major new activities to fill critical gaps in the nation's ability to understand and conserve coral reefs. These activities include mapping shallow water U.S. coral reefs, building a national assessment and monitoring program, improving assessment and management of coral reef fisheries, removing marine debris, and implementing the Coral Reef Ecosystem Reserve in the Northwestern Hawaiian Islands.

Many of these activities focus on gathering and analyzing baseline information to evaluate the condition of reef resources, identifying key threats, and building capacity to address those threats. Will it make a difference? We believe it will. By providing new funding, tools, and information the program is increasing capacity at local, state, federal and international levels to reduce adverse impacts and sustain coral reef ecosystems. These are significant steps in the right direction. However, this program alone will not reverse the decline of U.S. or international coral reefs, and it does not address all the critical needs identified by the National Action Plan and our partners. To reverse the decline of coral reefs, our partners must continue to do their part.

I will briefly review some of the major activities NOAA has supported in FY 2002. These efforts address some of the primary goals and priorities identified by the National Action Plan, and continue many of the activities begun in FY 2000 and FY 2001. Many of these are long-term activities requiring sustained, multi-year efforts for success. With your support for the President's Budget, we hope to fulfill these goals and address other critical needs that have not yet been met.

Coral Reef Mapping

The National Action Plan calls for mapping all shallow U.S. coral reefs by 2009. With the development of new technologies and additional partners, we think we can do it by 2007. Working with the Department of the Interior, NASA, other federal agencies and state and territory partners, we helped develop an out-year implementation plan and began multi-agency mapping efforts in 2000. Mapping coral reefs is a multi-step

process designed to characterize and assess current reef condition. The process involves acquiring images or other data on reefs from satellite, plane or boat, determining habitat types, classifying the habitats in the images, and producing the maps and other information for managers. The information provides managers and other users with a fundamental baseline for long-term monitoring and assessment of U.S. coral reefs. In FY2000, the Task Force estimated that less than 10 % of U.S. shallow reefs had been adequately mapped. New funding in FY2001, allowed us to complete mapping efforts already underway for the U.S. Virgin Islands and Puerto Rico, and launch initial efforts in the U.S. Pacific. In FY2001, we acquired mapping data for the main Hawaiian Islands and portions of the Northwestern Hawaiian Islands coral reef ecosystem. This year we will finalize maps for 30% of the main Hawaiian Island reefs, continue acquisition of mapping data in other U.S. Pacific areas, and conduct workshops with federal, state and territory managers on using mapping data and techniques. Working with the U.S. Geological Survey and other partners, NOAA has just begun to map selected deeper coral reefs and banks that represent important commercial and recreational fisheries habitats.

Monitoring and Research

Monitoring and research help managers assess reef condition, diagnose problems, prioritize and implement solutions, evaluate results and forecast future conditions. The Coral Reef Task Force identified the need for better monitoring and regular assessment of the Nation's reefs, and called for building an integrated monitoring system by 2005. In FY2002, NOAA is expanding efforts begun in FY2001 and is continuing funding and technical support to states and territories to help increase their monitoring and assessment programs. We are working with them to develop "report cards" that will help track the condition and pressures on reefs. This information will be incorporated into a single nation-wide biennial report on the Status of U.S. Coral Reef Ecosystems that will integrate on-going monitoring and provide regular assessments of the condition and pressures on U.S. coral reefs. I am very pleased to report that NOAA will release the first biennial report on the Status of U.S. Coral Reef Ecosystems by late summer. The findings suggest that while many U.S. reefs have been significantly impacted by fishing and land-based pollution, all of the U.S. reef regions do contain some reefs that are in good to excellent condition.

Funding in FY2001 and FY2002 has also allowed the United States to: expand the "Coral Reef Watch" early warning system to better predict and track coral reef bleaching and other conditions around the world; launch major cruises to assess poorly known reefs in American Samoa and the Northwestern Hawaiian Islands; and, continue assessments of reefs and reef fish in the South Atlantic, U.S. Caribbean and Gulf of Mexico.

Research is critical to understanding the causes of and solutions to reef decline. In the past two years, NOAA's Coral Program has supported a variety of research efforts through the National Coral Reef Institute (NCRI) in Florida and the Hawaii Coral Reef Institute (HCRI) that provide information needed to manage reef ecosystems in the Western Atlantic and Hawaii. Funding also supported development of the National Coral Disease and Health Consortium and other partnerships to better understand the causes and solutions to coral diseases and reef decline. In January, an interdisciplinary team of experts identified key research areas and technologies to address the growing epidemic of diseases attacking coral reefs. Their findings should be available this fall.

One of the areas needing additional research is how people use and value reefs and the economic contributions from reef related activities. Understanding these values is essential to effective conservation of coral reefs because coral reef management is really about managing human interactions with the reef ecosystem. This year we will complete an inventory of the existing information on valuation of reefs and

conduct workshops with managers on collecting and incorporating social and economic information in decisions. In the Virgin Islands, NOAA is working with fishermen to conduct the first comprehensive census of the coral reef commercial fishery and to develop participatory co-management approaches with fishing communities.

With all this new mapping, monitoring and research underway, we realized we needed a way to provide access to this information. At the next meeting of the Coral Reef Task Force in October, NOAA will unveil a new web site to provide "one-stop-shopping" for access to all of NOAA's coral reef data and information. The site will be a virtual library of coral reef data, from satellite images and reef maps, to diver surveys and fish counts. It will also provide access to many other products and services related to coral reef conservation, including information, tools and materials for teachers, students and managers.

Increase Effectiveness of Existing Marine Protected Areas

The National Action Plan calls for strengthening the use and effectiveness of marine protected areas as one of the tools in management of coral reefs. To support this goal in FY2002, NOAA has continued to work with states, territories, and other authorities at their request to help them evaluate the effectiveness of, and identify gaps in, the existing system of coral reef marine protected areas. NOAA's coral program also supported managment of the Northwestern Hawaiian Island Coral Reef Ecosystem Reserve, including hiring staff to coordinate management and research activities, finalizing the proposed Reserve operations plan, continuing the Sanctuary designation process, and identifying priority issues to be addressed in the draft Sanctuary Management Plan and Environmental Impact Statement.

Reduce the Adverse Impacts of Fishing and Support Fishery Management Plans

In FY2002, over $2.3 million, or 8%, of NOAA's coral reef program funding is being used to address priority needs of managers responsible for federal fisheries in coral reef ecosystems. Reducing overfishing and destructive fishing practices, and supporting sustainable reef management efforts is one of the most important areas needing attention, both here in the United States and internationally. This includes support for reef conservation activities of the Regional Fisheries Management Councils through the NOAA Coral Reef Conservation Grant Program, and other efforts to understand and reduce the impacts of fishing on reefs. For example, funding is supporting: studies to evaluate the impacts of traps and other fishing gear on reefs in the Northwestern Hawaiian Islands and U.S. Caribbean; incorporating ecosystem approaches to fisheries management; and, completing the installation of radar surveillance equipment to improve enforcement of the new Tortugas Ecological Reserve in the Florida Keys National Marine Sanctuary, the Nation's largest coral reef reserve. At the request of our state and territory partners, NOAA is sponsoring a series of workshops on best practices in management of coral reef fisheries. In addition, in FY2001, funding also assisted the Western Pacific Fishery Management Council complete development of a Coral Reef Fishery Management Plan for federally managed reef systems. The plan addresses reef resources not covered under other fishery management plans, and attempts to take more of an ecosystem-based approach to management. This plan is currently under review. Members of this Subcommittee have expressed the need to transition out fisheries management system away from a single-species focus and towards a more ecosystem-based management plan. We believe the process of developing this new plan will continue to provide valuable learning experiences about he types of information and infrastructure needed to complete that goal.

Reduce Pollution

Although the human impacts on coral reefs vary between locations and regions, many experts consider pollution and overfishing as the leading drivers of coral reef loss and degradation in the U.S. and around the world. Land-based sources of pollution are considered a major threat. The flow of sediments, nutrients, and chemicals from land can devastate reefs. Through the Coral Reef Conservation Grant Program and the Coral Conservation Fund, NOAA has provided funding to help address some of these issues, but this is a significant area that needs to be fully addressed. Given the role of other federal agencies in determining land use and water quality in coastal watersheds near reefs, increased and coordinated efforts will serve to benefit U.S. reefs.

Under the authorities provided in the Coastal Zone Management Act, states and territories that choose to participate are required to create non-point source pollution control programs. For areas adjacent to coral reefs, this can be a valuable tool in reducing the impact of sediment and nutrient runoff that can degrade coral reefs. Puerto Rico and the United States Virgin Islands have already provided non-point source pollution control programs and American Samoa's is nearly complete. Hawaii, the Commonwealth of the Northern Marianas Islands, and Puerto Rico have all included non-point source watershed or GIS projects in their FY2002 Coral Reef Conservation Act Grant applications.

In the Northwestern Hawaiian Islands, the major threat to the reef ecosystem is pollution originating from the sea. Many of the reefs are covered with literally, tons of debris that was carried by ocean currents from fishing activities and other remote sources. In FY2002, NOAA in cooperation with the State of Hawaii, U.S. Fish and Wildlife Service, and other partners funded year two of a three to four year campaign to remove this debris. Funding is also being used to find ways to prevent marine debris pollution from reaching the reefs, such as using remote sensing technologies to identify and remove derelict fishing gear at sea, and initiating an outreach program to stop the flow at its source.

Response and Restoration

NOAA has continued to support a variety of activities to help respond to damage events and to restore reefs following impacts. In FY2002, we will complete assessment restoration techniques and recovery models for coral reefs and associated ecosystems to help managers choose the most appropriate techniques for their situation. Restoration of coral reefs following major damage events is a very difficult and long-term process still requiring much research, development and testing. Funding will also be used to continue to monitor the recovery of reef fishes at restoration sites in the Florida Keys and Puerto Rico, and assist in seagrass restoration at a site in Puerto Rico. In addition, we are finalizing a database of abandoned vessels affecting U.S. reefs that will form the basis of a coordinated strategy to address the array of threats posed by grounded vessels. Coral program funding also is helping to build the capacity of coral reef managers to respond to vessel groundings, chemical spills and other events through training on enforcement, response, and restoration and through the publication of environmental sensitivity indices and standardized damage assessment protocols.

Reduce Global Threats

This year NOAA is continuing small-scale efforts to assist international partners in the conservation of coral reefs through the *Coral Reef Conservation Grants Program*. In collaboration with global partners, NOAA is providing support for publication of the 2002 Status of Coral Reefs of the World report by the Global Coral

Reef Monitoring Network. The new report will be released this fall. NOAA is also helping draft international guidelines to help improve the effectiveness of management in existing marine protected areas, and working with coral reef managers in the Caribbean and Southeast Asia to establish protocols for monitoring socioeconomic factors. In FY2001 and FY2002, Coral Program funding is also being used to increase the collection and analysis of data on the U.S. imports of coral and reef fish for the aquarium industry.

Conclusions

Conserving coral reefs is an important and major task requiring coordinated effort from variety of federal agencies, states and territories, other nations and nongovernmental organizations. The National Action Plan provides an excellent blueprint for U.S. action to conserve coral reefs. We must continually evaluate this blueprint and make changes to reflect current coral reef trends as well as new science. Fulfilling the Plan and helping reverse the decline of reefs will require sustained, coordinated efforts for many years, at multiple levels. NOAA and other partners have taken significant action to implement portions of the Plan and the requirements of the CRCA. These actions have strengthened U.S. capacity to conserve coral reefs, but continued action is needed for success. Finally, some areas still need additional attention, such as reducing land-based sources of pollution, working with international partners, and education efforts. We will need to use all the tools at our disposal if we are to successfully reduce the loss of these valuable resources. Ultimately, successful conservation of coral reefs will be determined by our ability to change the way people impact reef systems, so that our actions on land and at sea sustain reefs rather than destroy them. Thank you.

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